

## EMERGING AND NOVEL VIRUSES IN PASSERINE BIRDS

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### **SUPPLEMENTARY MATERIAL: TABLES S3a AND S3b:** West Nile Virus (WNV) detection records in class Aves

**SUPPLEMENTARY TABLE S3a:** WNV detection records recovered from class Aves, using PCR techniques or serology (mainly neutralization, but also cELISA). WNV, or antibodies to it, has been recovered from at least 392 bird species, from 67 families and 27 orders. This list is a minimum figure and is likely to be very much higher. WNV has been detected in 156 passerines (39.8% of WNV positive bird species), which is low considering passerines make up about 60% of bird species.

Order	Family	Species	Common name	Reference
Accipitriformes	Accipitridae	<i>Accipiter cooperii</i>	Cooper's hawk	1
		<i>Accipiter gentilis</i>	Northern Goshawk	1
		<i>Accipiter nisus</i>	Sparrowhawk	2
		<i>Accipiter striatus</i>	Sharp-shinned Hawk	1

<i>Aegypius monachus</i>	Cinereous Vulture	1
<i>Aquila adalberti</i>	Spanish imperial eagle	3
<i>Aquila audax</i>	Wedge-tailed Eagle	1
<i>Aquila chrysaetos</i>	Golden eagle	1
<i>Aquila nippalensis</i>	Steppe eagle	1
<i>Buteo buteo</i>	Buzzard	4
<i>Buteo jamaicensis</i>	Red-tailed Hawk	1
<i>Buteo lagopus</i>	Rough-legged Hawk	1
<i>Buteo lineatus</i>	Red-shouldered Hawk	1
<i>Buteo platypterus</i>	Broad-winged Hawk	1
<i>Buteo regalis</i>	Ferruginous Hawk	1
<i>Buteo swainsoni</i>	Swainson's Hawk	1
<i>Buteogallus anthracinus</i>	Common Black-Hawk	1
<i>Circaetus gallicus</i>	Short-toed snake Eagle	2
<i>Circus aeruginosus</i>	Marsh harrier	2
<i>Circus cyaneus</i>	Hen harrier	5
<i>Circus hudsonius</i>	Northern Harrier	1
<i>Circus pygargus</i>	Montagu's harrier	4
<i>Elanoides forficatus</i>	Swallow-tailed Kite	1
<i>Elanus leucurus</i>	White-tailed Kite	1
<i>Gypaetus barbatus</i>	Bearded vulture	6
<i>Gyps fulvus</i>	Griffon vulture	2
<i>Haliaeetus leucocephalus</i>	Bald Eagle	1
<i>Hieraaetus fasciatus</i>	Bonelli's eagle	4
<i>Hieraaetus pennatus</i>	Booted Eagle	7
<i>Ictinia mississippiensis</i>	Mississippi Kite	1
<i>Milvus migrans</i>	Black kite	2
<i>Milvus milvus</i>	Red kite	2
<i>Neophron percnopterus</i>	Egyptian vulture	4

Anseriformes	Cathartidae	<i>Parabuteo unicinctus</i>	Harris' Hawk	1
		<i>Pernis apivorus</i>	Honey buzzard	8
		<i>Cathartes aura</i>	Turkey Vulture	1
		<i>Coragyps atratus</i>	Black Vulture	1
		<i>Gymnogyps californianus</i>	California Condor	1
	Pandionidae	<i>Pandion haliaetus</i>	Osprey	1
	Anatidae	<i>Aix sponsa</i>	Wood Duck	1
		<i>Anas acuta</i>	Northern Pintail	1
		<i>Anas carolinensis</i>	Green-winged Teal	1
		<i>Anas fulvigula</i>	Mottled Duck	1
		<i>Anas penelope</i>	Eurasian Wigeon	1
		<i>Anas platyrhynchos</i>	Mallard	1
		<i>Anas undulata</i>	Yellow-billed Duck	1
		<i>Anser albifrons</i>	Greater White-fronted Goose	1
		<i>Anser anser</i>	Greylag geese	9
		<i>Anser caerulescens</i>	Snow Goose	1
		<i>Anser canagicus</i>	Emperor Goose	1
		<i>Anser cygnoides domesticus</i>	Chinese Goose	1
		<i>Aythya affinis</i>	Lesser Scaup	1
		<i>Aythya marila</i>	Greater Scaup	1
		<i>Aythya valisineria</i>	Canvasback	1
		<i>Branta canadensis</i>	Canada Goose	1
		<i>Branta hutchinsii</i>	Cackling Goose	1
		<i>Branta ruficollis</i>	Red-breasted Goose	1
		<i>Branta sandvicensis</i>	Hawaiian Goose	1
		<i>Bucephala albeola</i>	Bufflehead	1
		<i>Bucephala clangula</i>	Common Goldeneye	1
		<i>Cairina moschata</i>	Muscovy Duck	1
		<i>Chen canagica</i>	Emperor Goose	10

		<i>Cygnus columbianus</i>	Tundra Swan	1
		<i>Cygnus olor</i>	Mute Swan	1
		<i>Lophodytes cucullatus</i>	Hooded Merganser	1
		<i>Marmaronetta angustirostris</i>	Marbled duck	7
		<i>Mergellus albellus</i>	Smew	1
		<i>Mergus merganser</i>	Common Merganser	1
		<i>Oxyura jamaicensis</i>	Ruddy Duck	1
		<i>Spatula cyanoptera</i>	Cinnamon Teal	1
		<i>Spatula puna</i>	Puna Teal	1
		<i>Specularnas specularis</i>	Bronze-winged Duck	1
Apodiformes	Trochilidae	<i>Archilochus alexandri</i>	Black-chinned Hummingbird	1
		<i>Archilochus colubris</i>	Ruby-throated Hummingbird	1
		<i>Calypte anna</i>	Anna's Hummingbird	1
		<i>Calypte costae</i>	Costa's Hummingbird	1
		<i>Chaetura pelagica</i>	Chimney Swift	1
		<i>Selasphorus rufus</i>	Rufous Hummingbird	1
Bucerotiformes	Bucoridae	<i>Bucorvus abyssinicus</i>	Abyssinian Ground-Hornbill	1
	Upupidae	<i>Upupa epops</i>	Hoopoe	11
Caprimulgiformes	Caprimulgidae	<i>Antrostomus vociferus</i>	Whip-poor-will	1
		<i>Caprimulgus ruficollis</i>	Red-necked Nightjar	5
		<i>Chordeiles acutipennis</i>	Lesser Nighthawk	1
		<i>Chordeiles minor</i>	Common Nighthawk	1
Casuariiformes	Casuariidae	<i>Dromaius novaehollandiae</i>	Emu	1
Charadriiformes	Alcidae	<i>Uria aalge</i>	Common Murre	1
	Aramidae	<i>Aramus guarauna</i>	Limpkin	1
	Charadriidae	<i>Charadrius melodus</i>	Piping Plover	1
		<i>Charadrius vociferus</i>	Killdeer	1
	Laridae	<i>Hydroprogne caspia</i>	Caspian Tern	1
		<i>Larosterna inca</i>	Inca Tern	1

		<i>Larus argentatus</i>	Herring Gull	1
		<i>Larus atricilla</i>	Laughing Gull	9
		<i>Larus californicus</i>	California Gull	1
		<i>Larus delawarensis</i>	Ring-billed Gull	1
		<i>Larus glaucescens</i>	Glaucous-winged Gull	1
		<i>Larus glaucoides thayeri</i>	Thayer's Gull	1
		<i>Larus marinus</i>	Great Black-backed Gull	1
		<i>Larus michahellis</i>	Yellow-legged gull	12
		<i>Leucophaeus atricilla</i>	Laughing Gull	1
		<i>Rynchops niger</i>	Black Skimmer	1
		<i>Sternula antillarum</i>	Least Tern	1
	Scolopacidae	<i>Arenaria interpres</i>	Ruddy Turnstone	1
		<i>Calidris mauri</i>	Western Sandpiper	1
Ciconiiformes	Ciconiidae	<i>Ciconia ciconia</i>	White stork	7
	Ciconiidae	<i>Ciconia nigra</i>	Black stork	2
Columbiformes	Columbidae	<i>Columba livia</i>	Rock Pigeon	1
		<i>Columba palumbus</i>	Wood pigeon	8
		<i>Columbina inca</i>	Inca Dove	1
		<i>Columbina passerina</i>	Common Ground-Dove	1
		<i>Patagioenas fasciata</i>	Band-tailed Pigeon	1
		<i>Patagioenas leucocephala</i>	White-crowned Pigeon	1
		<i>Streptopelia decaocto</i>	Eurasian Collared-Dove	1
		<i>Streptopelia risoria</i>	Ringed Turtle-Dove	1
		<i>Streptopelia turtur</i>	Turtle dove	9
		<i>Zenaida asiatica</i>	White-winged Dove	1
		<i>Zenaida aurita</i>	Zenaida Dove	1
		<i>Zenaida macroura</i>	Mourning Dove	1
Coraciiformes	Alcedinidae	<i>Alcedo atthis</i>	Common kingfisher	9
		<i>Megaceryle alcyon</i>	Belted Kingfisher	1

		<i>Todiramphus sp.</i>	Micronesian Kingfisher	1
Cuculiformes	Cuculidae	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo	1
		<i>Geococcyx californianus</i>	Greater Roadrunner	1
Falconiformes	Falconidae	<i>Falco columbarius</i>	Merlin	1
		<i>Falco eleonora</i>	Eleanora's falcon	13
		<i>Falco mexicanus</i>	Prairie Falcon	1
		<i>Falco naumanni</i>	Lesser kestrel	7
		<i>Falco peregrinus</i>	Peregrine Falcon	1
		<i>Falco rusticolus</i>	Gyr Falcon	1
		<i>Falco sparverius</i>	American Kestrel	1
		<i>Falco subbuteo</i>	Eurasian hobby	5
		<i>Falco tinnunculus</i>	Kestrel	7
Galliformes	Odontophoridae	<i>Callipepla californica</i>	California Quail	1
		<i>Colinus virginianus</i>	Northern Bobwhite	1
		<i>Oreortyx pictus</i>	Mountain Quail	1
	Phasianidae	<i>Alectoris chukar</i>	Chukar	1
		<i>Alectoris rufa</i>	Red-legged partridge	14
		<i>Bonasa umbellus</i>	Ruffed Grouse	1
		<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	1
		<i>Crossoptilon auritum</i>	Blue-eared Pheasant	1
		<i>Gallus gallus domesticus</i>	Domestic Chicken	1
		<i>Lophophorus impejanus</i>	Impeyan Pheasant	1
		<i>Lophophorus sp.</i>	Monal Pheasant	1
		<i>Meleagris gallopavo</i>	Wild Turkey	1
		<i>Pavo cristatus</i>	Common Peafowl	1
		<i>Phasianus colchicus</i>	Ring-necked Pheasant	1
		<i>Tragopan blythii</i>	Blythe's Tragopan	1
		<i>Tragopan satyra</i>	Satyr Tragopan	1
		<i>Tympanuchus cupido</i>	Greater Prairie-Chicken	1

Gaviiformes	Gaviidae	<i>Gavia immer</i>	Common Loon	1
Gruiformes	Gruidae	<i>Antigone canadensis</i>	Sandhill Crane	1
		<i>Grus americana</i>	Whooping Crane	1
		<i>Grus canadensis</i>	Sanhill Crane	9
	Rallidae	<i>Fulica americana</i>	American Coot	1
		<i>Fulica atra</i>	Common coot	15
		<i>Gallinula chloropus</i>	Common Moorhen	1
		<i>Porphyrio martinica</i>	Purple Gallinule	1
		<i>Porzana carolina</i>	Sora	1
		<i>Rallus crepitans</i>	Clapper Rail	1
		<i>Rallus limicola</i>	Virginia Rail	1
Otidiformes	Otididae	<i>Otis tarda</i>	Great bustard	2
Passeriformes	Acrocephalidae	<i>Acrocephalus scirpaceus</i>	Eurasian reed warbler	11
	Aegithalidae	<i>Psaltiriparus minimus</i>	Bushtit	1
	Bombycillidae	<i>Bombycilla cedrorum</i>	Cedar Waxwing	1
	Cardinalidae	<i>Cardinalis cardinalis</i>	Northern Cardinal	1
		<i>Passerina amoena</i>	Lazuli Bunting	1
		<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	1
		<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	1
		<i>Piranga ludoviciana</i>	Western Tanager	1
		<i>Piranga olivacea</i>	Scarlet Tanager	1
		<i>Spiza americana</i>	Dickcissel	1
		<i>Thraupis palmarum</i>	Palm Tanager	1
	Cettidae	<i>Cettia cetti</i>	Cetti's warbler	16
	Cinclidae	<i>Cinclus mexicanus</i>	American Dipper	1
	Corvidae	<i>Aphelocoma californica</i>	Western Scrub-Jay	1
		<i>Aphelocoma wollweberi</i>	Mexican Jay	1
		<i>Corvus brachyrhynchos</i>	American Crow	1
		<i>Corvus corax</i>	Common Raven	1

	<i>Corvus cornix</i>	Hooded Crow	1
	<i>Corvus cryptoleucus</i>	Chihuahuan Raven	1
	<i>Corvus frugilegus</i>	Rook	9
	<i>Corvus ossifragus</i>	Fish Crow	1
	<i>Cyanocitta cristata</i>	Blue Jay	1
	<i>Cyanocitta stelleri</i>	Steller's Jay	1
	<i>Cyanopica cyanus</i>	Azure-winged magpie	11
	<i>Garrulus glandarius</i>	Eurasian Jay	1
	<i>Gymnorhinus cyanocephalus</i>	Pinyon Jay	1
	<i>Nucifraga columbiana</i>	Clark's Nutcracker	1
	<i>Pica hudsonia</i>	Black-billed Magpie	1
	<i>Pica nuttalli</i>	Yellow-billed Magpie	1
	<i>Pica pica</i>	Black-billed magpie	1
Estrildidae	<i>Amandava amandava</i>	Red avadavat	16
	<i>Chloebia gouldiae</i>	Gouldian Finch	1
	<i>Estrilda astrild</i>	Common waxbill	16
	<i>Lonchura punctulata</i>	Nutmeg Mannikin	1
	<i>Lonchura striata domestica</i>	Society Finch	1
	<i>Taeniopygia sp</i>	Zebra Finch	1
Fringillidae	<i>Carduelis carduelis</i>	European Goldfinch	1
	<i>Haemorhous cassinii</i>	Cassin's Finch	1
	<i>Haemorhous mexicanus</i>	House Finch	1
	<i>Haemorhous purpureus</i>	Purple Finch	1
	<i>Hesperiphona vespertina</i>	Evening Grosbeak	1
	<i>Loxia curvirostra</i>	Red Crossbill	1
	<i>Serinus canaria forma domestica</i>	Common Canary	1
	<i>Spinus pinus</i>	Pine Siskin	1
	<i>Spinus psaltria</i>	Lesser Goldfinch	1
	<i>Spinus tristis</i>	American Goldfinch	1



Hirundidae	<i>Delichon urbicum</i>	House martin	9
	<i>Hirundo rustica</i>	Barn Swallow	1
	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	1
	<i>Progne subis</i>	Purple Martin	1
	<i>Riparia riparia</i>	Sand martin	1
	<i>Tachycineta bicolor</i>	Tree Swallow	1
Icteridae	<i>Agelaius phoeniceus</i>	Red-winged Blackbird	1
	<i>Agelaius tricolor</i>	Tricolored Blackbird	1
	<i>Dolichonyx oryzivorus</i>	Bobolink	1
	<i>Euphagus carolinus</i>	Rusty Blackbird	1
	<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	1
	<i>Icterus bullockii</i>	Bullock's Oriole	1
	<i>Icterus cucullatus</i>	Hooded Oriole	1
	<i>Icterus galbula</i>	Baltimore Oriole	1
	<i>Icterus spurius</i>	Orchard Oriole	1
	<i>Molothrus aeneus</i>	Bronzed Cowbird	1
	<i>Molothrus ater</i>	Brown-headed Cowbird	1
	<i>Quiscalus major</i>	Boat-tailed Grackle	1
	<i>Quiscalus mexicanus</i>	Great-tailed Grackle	1
	<i>Quiscalus quiscula</i>	Common Grackle	1
	<i>Sturnella neglecta</i>	Western Meadowlark	1
Lanidae	<i>Lanius ludovicianus</i>	Loggerhead Shrike	1
	<i>Lanius senator</i>	Woodchat shrike	17
Mimidae	<i>Dumetella carolinensis</i>	Gray Catbird	1
	<i>Mimus polyglottos</i>	Northern Mockingbird	1
	<i>Toxostoma lecontei</i>	LeConte's Thrasher	1
	<i>Toxostoma rufum</i>	Brown Thrasher	1
Motacillidae	<i>Motacilla flava</i>	Western yellow wagtail	11
Muscicapidae	<i>Erithracus rubecula</i>	European robin	9

	<i>Phoenicurus ochruros</i>	Black redstart	17
	<i>Phoenicurus phoenicurus</i>	Common redstart	17
Paridae	<i>Baeolophus bicolor</i>	Tufted Titmouse	1
	<i>Baeolophus inornatus</i>	Oak Titmouse	1
	<i>Poecile atricapillus</i>	Black-capped Chickadee	1
	<i>Poecile carolinensis</i>	Carolina Chickadee	1
	<i>Poecile gambeli</i>	Mountain Chickadee	1
	<i>Poecile rufescens</i>	Chestnut-backed Chickadee	1
	<i>Sittiparus varius</i>	Varied Tit	1
Parulidae	<i>Cardellina canadensis</i>	Canada Warbler	1
	<i>Cardellina pusilla</i>	Wilson's Warbler	1
	<i>Geothlypis formosa</i>	Kentucky Warbler	1
	<i>Geothlypis tolmiei</i>	MacGillivray's Warbler	1
	<i>Geothlypis trichas</i>	Common Yellowthroat	1
	<i>Leiothlypis celata</i>	Orange-crowned Warbler	1
	<i>Leiothlypis peregrina</i>	Tennessee Warbler	1
	<i>Leiothlypis ruficapilla</i>	Nashville Warbler	1
	<i>Parkesia noveboracensis</i>	Northern Waterthrush	1
	<i>Seiurus aurocapilla</i>	Ovenbird	1
	<i>Setophaga americana</i>	Northern Parula	1
	<i>Setophaga caerulescens</i>	Black-throated Blue Warbler	1
	<i>Setophaga citrina</i>	Hooded Warbler	1
	<i>Setophaga coronata</i>	Yellow-rumped Warbler	1
	<i>Setophaga dominica</i>	Yellow-throated Warbler	1
	<i>Setophaga nigrescens</i>	Black-throated Gray Warbler	1
	<i>Setophaga petechia</i>	Yellow Warbler	1
	<i>Setophaga striata</i>	Blackpoll Warbler	1
	<i>Setophaga townsendi</i>	Townsend's Warbler	1
Passerellidae	<i>Chondestes grammacus</i>	Lark Sparrow	1

	<i>Junco hyemalis</i>	Dark-eyed Junco	1
	<i>Melospiza georgiana</i>	Swamp Sparrow	1
	<i>Melospiza lincolni</i>	Lincoln's Sparrow	1
	<i>Melospiza melodia</i>	Song Sparrow	1
	<i>Melospiza crissalis</i>	California Towhee	1
	<i>Passerculus sandwichensis</i>	Savannah Sparrow	1
	<i>Passerella iliaca</i>	Fox Sparrow	1
	<i>Pipilo erythrophthalmus</i>	Eastern Towhee	1
	<i>Pipilo maculatus</i>	Spotted Towhee	1
	<i>Spizella atrogularis</i>	Black-chinned Sparrow	1
	<i>Spizella passerina</i>	Chipping Sparrow	1
	<i>Spizella pusilla</i>	Field Sparrow	1
	<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	1
	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	1
Passeridae	<i>Passer domesticus</i>	House Sparrow	1
Ploceidae	<i>Euplectes afer</i>	Yellow-crowned bishop	16
Sittidae	<i>Sitta canadensis</i>	Red-breasted Nuthatch	1
	<i>Sitta carolinensis</i>	White-breasted Nuthatch	1
	<i>Sitta pygmaea</i>	Pygmy Nuthatch	1
Sturnidae	<i>Sturnus vulgaris</i>	European Starling	1
Sylviidae	<i>Sylvia borin</i>	Garden warbler	17
	<i>Sylvia melanocephala</i>	Sardinian warbler	16
Troglodytidae	<i>Campylorhynchus brunneicapillus</i>	Cactus Wren	1
	<i>Salpinctes obsoletus</i>	Rock Wren	1
	<i>Thryothorus ludovicianus</i>	Carolina Wren	1
	<i>Troglodytes aedon</i>	House Wren	1
	<i>Troglodytes hiemalis</i>	Winter Wren	1
Turdidae	<i>Catharus fuscescens</i>	Veery	1
	<i>Catharus guttatus</i>	Hermit Thrush	1

		<i>Catharus minimus</i>	Gray-cheeked Thrush	1
		<i>Catharus ustulatus</i>	Swainson's Thrush	1
		<i>Hylocichla mustelina</i>	Wood Thrush	1
		<i>Ixoreus naevius</i>	Varied Thrush	1
		<i>Sialia currucoides</i>	Mountain Bluebird	1
		<i>Sialia mexicana</i>	Western Bluebird	1
		<i>Sialia sialis</i>	Eastern Bluebird	1
		<i>Turdus merula</i>	Blackbird	11
		<i>Turdus migratorius</i>	American Robin	1
	Tyrannidae	<i>Contopus cooperi</i>	Olive-sided Flycatcher	1
		<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	1
		<i>Empidonax hammondi</i>	Hammond's Flycatcher	1
		<i>Empidonax traillii</i>	Willow Flycatcher	1
		<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	1
		<i>Myiarchus crinitus</i>	Great Crested Flycatcher	1
		<i>Sayornis nigricans</i>	Black Phoebe	1
		<i>Sayornis phoebe</i>	Eastern Phoebe	1
		<i>Tyrannus forficatus</i>	Scissor-tailed Flycatcher	1
		<i>Tyrannus tyrannus</i>	Eastern Kingbird	1
		<i>Tyrannus verticalis</i>	Western Kingbird	1
	Vireonidae	<i>Vireo altiloquus</i>	Black-whiskered Vireo	1
		<i>Vireo gilvus</i>	Warbling Vireo	1
		<i>Vireo olivace</i>	Red-eyed Vireo	1
Pelecaniformes	Ardeidae	<i>Ardea alba</i>	Great Egret	1
		<i>Ardea herodias</i>	Great Blue Heron	1
		<i>Bubulcus ibis</i>	Western cattle egret	1
		<i>Butorides virescens</i>	Green Heron	1
		<i>Egretta garzetta</i>	Little egret	9
		<i>Egretta thula</i>	Snowy Egret	1

		<i>Ixobrychus exilis</i>	Least Bittern	1
		<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron	1
		<i>Nycticorax nycticorax</i>	Black-crowned Night Heron	1
	Pelecanidae	<i>Pelecanus erythrorhynchos</i>	American White Pelican	1
	Threskiornithidae	<b><i>Eudocimus ruber</i></b>	Scarlet Ibis	1
		<i>Platalea leucorodia</i>	Spoonbill	4
		<i>Plegadis chihi</i>	White-faced Ibis	1
		<i>Plegadis falcinellus</i>	Glossy ibis	12
Phoenicopteriformes	Phoenicopteridae	<i>Phoenicopus chilensis</i>	Chilean Flamingo	1
		<i>Phoenicopus roseus</i>	Greater flamingo	1
Piciformes	Picidae	<i>Colaptes auratus</i>	Northern Flicker	1
		<i>Dryobates nuttallii</i>	Nuttall's Woodpecker	1
		<i>Dryobates pubescens</i>	Downy Woodpecker	1
		<i>Dryobates villosus</i>	Hairy Woodpecker	1
		<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	1
		<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	1
		<i>Melanerpes formicivorus</i>	Acorn Woodpecker	1
		<i>Melanerpes lewis</i>	Lewis' Woodpecker	1
		<i>Melanerpes uropygialis</i>	Gila Woodpecker	1
		<i>Sphyrapicus ruber</i>	Red-breasted Sapsucker	1
		<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker	1
Podicipediformes	Podicipedidae	<i>Aechmophorus clarkii</i>	Clark's Grebe	1
		<i>Podilymbus podiceps</i>	Pied-billed Grebe	1
Psittaciformes	Cacatuidae	<i>Cacatua sp.</i>	Cockatoo	1
	Psittacidae	<i>Amazona viridigenalis</i>	Red-crowned Parrot	1
		<i>Brotogeris sp.</i>	Canary-winged Parakeet	1
		<i>Forpus coelestis</i>	Pacific Parrotlet	1
		<i>Psittacara finschi</i>	Crimson-fronted Parakeet	1
		<i>Psittacus erithacus</i>	African Grey Parrot	1

	Psittaculidae	<i>Rhynchopsitta pachyrhyncha</i>	Thick-billed Parrot	1
		<i>Thectocercus acuticaudatus</i>	Blue-crowned Conure	1
		<i>Coracopsis vasa</i>	Greater vasa parrot	9
		<i>Eos bornea</i>	Red Lory	1
		<i>Eos reticulata</i>	Blue-streaked Lory	1
		<i>Eos squamata</i>	Violet-necked Lorikeet	1
		<i>Lorius lory</i>	Black-capped Lory	1
		<i>Melopsittacus undulatus</i>	Budgerigar	1
		<i>Nymphicus hollandicus</i>	Cockatiel	1
		<i>Platycercus adscitus</i>	Pale-headed Rosella	1
		<i>Platycercus elegans</i>	Crimson Rosella	1
		<i>Pseudeos fuscata</i>	Dusky Lory	1
		<i>Trichoglossus moluccanus</i>	Rainbow Lorikeet	1
Sphenisciformes	Spheniscidae	<i>Spheniscus demersus</i>	African Penguin	1
		<i>Spheniscus humboldti</i>	Humboldt Penguin	1
Strigiformes	Strigidae	<i>Aegolius acadicus</i>	Northern Saw-whet Owl	1
		<i>Aegolius funereus</i>	Boreal Owl	1
		<i>Asio flammeus</i>	Short-eared Owl	1
		<i>Asio otus</i>	Long-eared Owl	1
		<i>Athene cunicularia</i>	Burrowing Owl	1
		<i>Bubo bubo</i>	Eagle owl	2
		<i>Bubo scandiacus</i>	Snowy Owl	1
		<i>Bubo virginianus</i>	Great Horned Owl	1
		<i>Megascops asio</i>	Eastern Screech-Owl	1
		<i>Megascops kennicottii</i>	Western Screech-Owl	1
		<i>Micrathene whitneyi</i>	Elf Owl	1
		<i>Otus scops</i>	Eurasian scops owl	18
		<i>Psilosops flammeolus</i>	Flammulated Owl	1
		<i>Strix aluco</i>	Tawny Owl	1

		<i>Strix nebulosa</i>	Great Gray Owl	1
		<i>Strix occidentalis</i>	Spotted Owl	1
		<i>Strix varia</i>	Barred Owl	1
		<i>Surnia ulula</i>	Northern Hawk-Owl	1
	Tytonidae	<i>Tyto alba</i>	Barn Owl	1
Struthioniformes	Struthionidae	<i>Struthio camelus</i>	Ostrich	10
Suliformes	Phalacrocoracidae	<i>Leucocarbo bougainvillii</i>	Guanay Cormorant	1
		<i>Nannopterum auritum</i>	Double-crested Cormorant	1
		<i>Phalacrocorax carbo</i>	Great cormorant	9
		<i>Urile pelagicus</i>	Pelagic Cormorant	1
Tinamiformes	Tinamidae	<i>Eudromia elegans</i>	Elegant Crested Tinamou	1

**SUPPLEMENTARY TABLE S3b:** summary of WNV detections in avian orders showing the number of positive families and species in each order, and the percent of total detections for the order.

Order	# of WNV positive families	# of WNV positive species	% of total WNV detections
Accipitriformes	3	39	9.9
Anseriformes	1	33	8.4
Apodiformes	1	6	1.5
Bucerotiformes	2	2	0.5
Caprimulgiformes	1	4	1.0
Casuariiformes	1	1	0.3
Charadriiformes	5	19	4.8
Ciconiiformes	1	2	0.5
Columbiformes	1	12	3.1
Coraciiformes	1	3	0.8
Cuculiformes	1	2	0.5

Falconiformes	1	9	2.3
Galliformes	2	17	4.3
Gaviiformes	1	1	0.3
Gruiformes	2	10	2.6
Otidiformes	1	1	0.3
Passeriformes	27	156	39.8
Pelecaniformes	3	14	3.6
Phoenicopteriformes	1	2	0.5
Piciformes	1	11	2.8
Podicipediformes	1	2	0.5
Psittaciformes	3	19	4.8
Sphenisciformes	1	2	0.5
Strigiformes	2	19	4.8
Struthioniformes	1	1	0.3
Suliformes	1	4	1.0
Tinamiformes	1	1	0.3

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